

# The Effect of Self-Directed Work Teams on Work Ethic

*Doo Hun Lim, Gregory Petty, and Johnny Fontan*  
*University of Tennessee*

*Seung Won Yoon*  
*Western Illinois University*

*The purpose of this study was to compare work ethic of manufacturing machine operators between a self-directed work team and a traditional work team based on four work ethic subscales and identify differences in work ethic based on six demographic factors. The major findings from the study indicated there were significant differences in the work ethic between machine operators in self-directed work and traditional work systems teams.*

Key words: Self-directed Work Team, Work Ethic, Manufacturing Company

Since the early study of self-directed work teams for job design in American workplace in 1951 (Trist & Bamforth, 1951), a wide variety of businesses and industries including major Fortune 500 and 1000 companies have adopted the movement towards utilizing self-directed work teams for their companies. For example, a study of self-directed work teams reported 72 percent of Fortune 1000 companies had at least one form of self-directed work teams within their organization (Lawler, Mohrman, & Benson, 2001). The thrust of institutionalizing self-directed work teams in the modern workplace organizations is to improve employee and organizational performance through various characteristics of self-directed work teams including multi-functional work roles, shared responsibility, autonomous decision making and problem solving, a team focus, and self-determined leadership (Orsburn, Moran, Musselwhite, Zenger, & Perrin, 1990). The self-directed work team allows individual employees to have more input into the production process and strives to create more ownership for each worker (Cummings, 1978).

In organizational development literature there has been a great deal of research about organizational variables in job satisfaction (Kemp, Wall, Clegg, & Cordery, 1983), absenteeism (Trist, 1981), autonomy and trust in management (Cordery, Mueller, & Smith, 1991), productivity (Pasmore, 1978), and perceptions of control (Denison, 1982). By and large, the concept of self-directed work teams has fairly well represented within the context of these studies as dependent or mediating variables. Among those, several studies reported that organizations with self-directed work teams tended to produce higher levels of profitability, productivity, job satisfaction, and commitment when compared with organizations with more traditional work systems. From our extended literature review, however, it was identified that very few studies compared work ethic between self-directed work teams and traditional work teams. Moreover, we could hardly find a study comparing the work ethic of machine operators in a self-directed work team plant to that of machine operators in a traditional work systems plant within manufacturing organizations. As more private and public sector organizations utilize self-directed work teams to achieve their organizational goals and objectives (Cummings, 1978), identifying the effect of self-directed work system on the work ethic of employees in manufacturing environment is considered a unique research topic to be further used by various organizational researchers and practitioners.

## Theoretical Framework

### *Self-directed Work Teams*

Several definitions of self-directed work teams could be found from the organizational study literature. First, Dachler and Wilpert (1978) defined self-directed work teams as a group of frontline employees who are given the opportunity to make decisions over their day-to-day operations. Similarly, Orsburn, et al. (1990) defined a self-directed work team as a highly trained group of employees who are fully responsible for turning out a well-defined segment of finished work. According to Sundstrom (1999), a self-directed work team is a group of interdependent individuals who share responsibility for specific outcomes for their organization with interdependent roles, interdependent goals, interdependent outcomes or shared fate, reporting to the same manager, co-location or shared workplace, and members see themselves as a team along with stable membership.

The study of self-directed work teams has rooted its origin from the study of socio-technical work systems

*Copyright © 2008 Doo Hun Lim, Gregory Petty, Seung Won Yoon, & Johnny Fontan*

design in early 1950s. With an attempt to address various workplace issues caused by the scientific management work design established by Frederick Taylor (i.e., alienation, loss of meaningfulness in work, lack of motivation, etc.), researchers and social scientists were invoked to develop a new and innovative work design method utilizing the theory of socio-technical systems emphasizing the interdependence between technical aspects of the work and the broader social milieu in which the work is done (Emery & Trist, 1969). Concertive control and assimilation are two important notions of the socio-technical systems that conceptualize the central concepts of the self-directed work team. First, Tompkins and Cheney (1985) described concertive control as a form of organizational control that arises in accordance with the dominant ideologies in the organization. In concertive working environment, team members have discretion over such decision as methods of work, task schedules, and assignment of members to different tasks (Cummings, 1978). Teams negotiate a consensus on key values that are used to govern their collective work and then create norms and formal rules through day-to-day interactions (Barker, 1993). Second, assimilation refers to a team member's cognitive acceptance and identification with a group and organizational assimilation occurs when a team member internalizes the values, beliefs, and assumptions of a work group (Gibson & Papa, 2000). Jablin's (1985) describes a process of assimilation as having three distinct stages: anticipatory socialization, encounter, and metamorphosis stage. In the anticipatory socialization stage family members, educational institutions, job experiences, peers and friends influence a person to develop expectations and beliefs about how people communicate in particular occupations and setting. The encounter stage could be identified by the clash of the person's previously held expectations with the reality of the organization. The metamorphosis stage occurs when the person utilizes newly learned attitudes and behaviors to be consistent with those of the organization.

A multitude of studies about self-directed work teams were found from the literature. The original study of self-directed work teams was an examination of British coal mining teams (Trist & Bamforth, 1951). In this study the management of the mines shifted the miners from self-directed work teams into specialized teams. The result was an increase in productivity, job satisfaction, and a decrease in absenteeism. In Morse and Reimer's study (1956), the introduction of greater participation in the work of two units within a department allowed more decision making power about work issues, work methods, break periods, and the handling of tardiness when compared with the case of less participation into the work of other units within the same department.

In a series of studies, Trist et al. found that a self-directed work team unit had a higher rate of productivity and a lower rate of absenteeism (1963), a substantial drop in violations of health and safety violations, and an increase of positive work attitudes (1977). In Pasmore's study (1978) comparing two units of a food-processing company, the self-directed work team unit had significant improvements in productivity while there were no improvements in the traditional work team. In another study the employees in a self-directed work team facility reported higher levels of intrinsic satisfaction (Wall, Kemp, Jackson, & Clegg, 1986). Other studies also reported that self-directed work teams resulted in higher levels of satisfaction (Ondrack & Evans, 1987) and perceived greater control over the production process (Denison, 1982).

Research by Cordery, Mueller, and Smith (1991) conducted a longitudinal study of self-directed work teams and found that workers in the organization utilizing autonomous work groups reported significantly higher scores in terms of intrinsic job characteristics, work role autonomy, extrinsic satisfaction, intrinsic satisfaction, and organizational commitment than workers operating under traditional work structures. Pasmore, Francis, and Haldeman (1982) reviewed 134 studies about self-directed work teams and conclude that the self-directed work teams were extremely successful in terms of employee attitudes, safety, quality, improving productivity, and decreasing cost, absenteeism, and turnover.

A group of researchers (Appelbaum, Bailey, Berg, & Kalleberg, 2000) studied self-directed work team along with a number of variables including trust, intrinsic rewards, organizational commitment, and job satisfaction within the steel, apparel, and medical manufacturing industries and found these variables were positively related to self-directed work systems in each of the three industries studied. The researchers also found that the amount of money that workers earn in the apparel industry is positively related to participating in high-performance work systems. The other industries indicated a small positive correlation but not as significant as the one found in the apparel industry.

In Lawler's study (1978) he categorized the innovations in self-directed work design into six key elements: (a) physical design of facilities that are congruent with social objectives, (b) job designs that give emphasis to self-managing teams, (c) compensation systems that reward skill development, (c) organization structures that minimize hierarchy, supervision, and functional specialization, (d) heavy emphasis on training, personal growth, and career development, and (e) a management style that allows decision making to be pushed to the lowest levels of the organization. Within self-directed work systems, autonomous work groups can have self-management opportunities related to task distribution, coordination, training, and problem solving (Zuboff, 1983) and collective control over

the pace of work, distribution of tasks, organization of breaks, and collective participation in the recruitment and training of new members (Gulowsen, 1972).

#### *Work Ethic Studies*

In 1969, Super created the Work Values Inventory. This instrument was designed to measure 15 values identified as creativity, management, achievement, surrounding, supervisory relations, way of life, security, associates, esthetics, prestige, independence, variety, economic return, altruism, and intellectual stimulation (Gable, 1972). The measure of these values reflect upon the worker's satisfaction with employment rather than directly assessing work ethic (Hill, 1992). Wayne's work ethic (1989) instrument, consisted of 119 four-point Likert-type items, was designed to measure adherence to contemporary work values and the Protestant work ethic. Wayne surveyed 688 subjects and found no difference in measure of Protestant work ethic based on gender or age. Furnham (1990) studied seven instruments designed to measure the Protestant Work Ethic including: (a) the Protestant Ethic (Goldstein & Eichorn, 1961), (b) the Protestant Work Ethic (Mirels & Garrett, 1971), (c) the Pro-Protestant Ethic Scale (Blood, 1969), (d) the Spirit of Capitalism Scale (Hammond & Williams, 1976), (e) the Leisure Ethic and Work Ethic (Buchholz, 1978), (f) the Eclectic Protestant Ethic (Ray, 1982), (g) the Australian Work Ethic (Ho, 1984) and found that five main factors accounted for one-third of the total variance between items. These factors included: (a) belief in hard work (b) the role of leisure, (c) religious and moral beliefs, (d) a stress on independence of others, and (e) asceticism (Furnham, 1990). Furnham and Koritsas (1990) studied the relationship between the seven previously stated Protestant Work Ethic scales and Holland's vocational preference instrument. Among Holland's (1996) six personality types (realistic, investigative, artistic, social, enterprising, conventional), four types in realistic, artistic, enterprising, and conventional were positively correlated with the Protestant Work Ethic scales.

The Occupational Work Ethic Inventory (OWEI) (Petty, 1991) used for this study was based on Kazanas' Affective Work Competency Inventory (AWCI) because the affective work competencies of the instrument were considered appropriate to measure the intended research construct of his study. For instrument development 63 affective work competencies were selected from the AWCI. The researchers developed the OWDI by listing the 63 work competencies phrase to directly measure work ethic in relation to a person's work (Dawson, 1999). For content validity, the researchers convened a panel of subject-matter experts and asked them to categorize one- or two- word descriptors into groups. This process took place until consensus was reached. The clusters created by the categorization process were labeled *dependable*, *ambitious*, *considerate*, and *cooperative*. The instrument was validated by Hill's (1992), Petty's (1995), and Hill and Petty's (1995) studies.

## **Purpose and Methodology**

### *Purpose*

The purpose of this study is to investigate the effect of self-directed work teams on the work ethic of employees in a manufacturing company. This study utilizes the Occupational Work Ethic Inventory (OWEI) to measure work ethic. For the purpose of this study, the following research objectives were developed.

1. Are there any differences in the work ethic of machine operators based on demographic variables in age, gender, level of education, years of full-time work experience, years of experiences as a supervisor, and work shift preference?
2. Are there any differences in the work ethic of machine operators between a self-directed work team manufacturing facility and a conventional work team manufacturing facility?

### *Sample*

The population consists of 396 production workers employed in two facilities of paper mill manufacturing sites located in Tennessee and Wisconsin respectively. The site A in Tennessee produced 169 out of a 250 possible responses, a return rate of 68%. The respondents from site B in Wisconsin returned 83 out of a possible 146 responses, a return rate of 57%. Of the 396 possible respondents, 252 completed a survey yielding a 64% overall response rate. Among all respondents, there were 199 (79%) male and 63 (25%) were between the ages of 27 and 35 while 168 (67%) were between the ages of 36 and 55.

The paper mill company is a world-class leader in the manufacturing of consumer goods and employs over 64,000 workers at 41 overseas production facilities. Among the production sites in the US, the site A facility has been operated since 1993 and was designed to be a Greenfield site utilizing high performance self-directed work teams. The machine operators at the facility A are referred to as partners. The partners are assigned to 18 to 30 person teams in either hand towel or bath tissue production. Both production processes have five functional areas in fiber preparation, tissue, converting, shipping, and waste water. Each team member gains skills to work interchangeably between functions. Maintenance personnel are also organized in teams that are designated as either hand towel or bath tissue. Each team has a designated team coordinator. The team coordinator assumes many

administrative and leadership responsibilities within each team. The team coordinator designation rotates amongst the members of each team giving each team member an opportunity to gain leadership and administrative skills. Each team sets objectives to accomplish in order to meet business needs. The teams are given a great deal of autonomy to decide how to go about meeting their objectives. The team members also have a great deal of input into determining training needs, hiring process, and their performance evaluation process. In site B, operated since 1969 in Wisconsin, the facility employs 146 machine operators and most of those machine operators work 12 hour rotating shifts. This site B mill is a union facility that utilizes traditional work structures to accomplish its manufacturing process.

#### *Instrument and Procedure*

The Occupational Work Ethic Inventory (OWEI) used for this study is a self-report questionnaire developed by Petty (1991). The instrument was selected based on a review of literature about work attitudes, work values, and work habits. The OWEI consisted of 50 descriptors with six demographic questions. The 50 descriptors comprised four subscales in: (a) *dependable*, (b) *considerate*, (c) *ambitious*, and (d) *cooperative*, representing the sub-components of occupational work ethic profile. The following results are Cronbach's reliability coefficients for each of the four subcategories. The 16 questions related to *dependable* subscale had an alpha of .85. The 12 questions for the *ambitious* subscale had an alpha that equaled .64. The *considerate* subscale contained 14 questions and had an alpha of .81. The 7 questions related to *cooperative* subscale indicated coefficient alpha of .63.

The OWEI instrument was distributed to production workers at each of the two manufacturing facilities included in this study. The surveys were distributed to the site A machine operators at morning and evening shift change meetings in order to include every operator. The instrument was distributed to the site B machine operators through team meetings by a representative from the site B's Human Resources Department.

#### *Data Analysis*

The data gathered from the OWEI were analyzed using SPSS 15.1 for Windows. Descriptive statistics including the mean, standard deviation, and frequencies were analyzed for the demographic data. T-test and analysis of variance (ANOVA) test were performed to analyze score differences between two (e.g., gender and the status of self directed or conventional work groups) or multiple groupings (e.g., supervisory experiences and educational levels). Confidence intervals and effect size were calculated for group score differences between self-directed and conventional work teams. For significant ANOVA results, due to the exploratory nature of multiple groups examined, the Tukey Honestly Significant Difference (HSD) post hoc test was administered to further identify the pairwise source of statistical significance.

## **Findings**

#### *Demographic Characteristics*

The demographic information collected from this study was displayed as frequencies and percentiles in order to help describe the population. The demographic information collected for this study included age, gender, years of full-time work experience, years of experiences as a supervisor, level of education, and work shift preference. First, regarding gender, there were 53 (21%) female and 199 (79%) male respondents. For the age range of the respondents, no respondent was 19 years or under, 8 (3%) were 20 to 26 years of age, 63 (25%) were between the ages of 27 and 35, 168 (67%) were between the ages of 36 and 55, and 13 (5%) were over 55 years old. In the respondents' level of education, there was only one person (.4%) who had less than a high school diploma, 193 (76.6%) attained a high school degree or GED, 51 (20.2%) had two years of college or associate's degree, 4 (1.6%) had a bachelor's degree, and 3 (1.2%) had completed at least some graduate work. Regarding the number of years of full-time work, 2 (.7%) respondents had less than one year of experience, whereas 31 (12.3%) had one to five years of experience, and 219 (87%) had five or more years of experience. For the respondents' years of experience as a supervisor, 125 (49.6%) reported no experience, 42 (16.7%) had less than two years of experience, while 68 (27%) respondents had between two and eight years, and 17 (6.7%) had more than 8 years of supervisory work experience. The preference for type of shift work was the last demographic variable examined in this study. There were 8 (3.2%) respondents that preferred eight hour night shifts, 72 (28.6%) respondents that preferred eight hour day shifts, 8 (3.2%) respondents that preferred eight hour rotating shifts, 17 (6.8%) respondents that preferred twelve hour night shifts, 38 (15%) respondents that preferred twelve hour day shifts, and lastly 109 (43.2%) respondents that preferred twelve hour rotating shifts.

#### *Differences in Work Ethic by Demographic Characteristics*

Table 1 presents the statistical results of mean score differences between (e.g., gender) and among groups (e.g., Age: 26 or under (n = 8), 27-35 (n = 63), 36-55 (n = 168), and over 55 (n = 13); Level of Education: Less than high school (n = 1), High school or GED (n = 193), 2 years of college or Associate (n = 51), Bachelor (n = 4), and Some

graduate work (n = 3); Fulltime Work Experiences: 1 or less (n = 2), 1-5 (n = 31), 5 or more (n = 219); Years of Supervisory Experiences: None (n = 125), Less than 2 years (n = 42), 2-8 years (n = 68), and More than 8 years (n = 17); and Workshift Preferences: 8 hour night shift (n = 8), 8 hour day shift (n = 72), 8 hour rotating shift (n = 8), 12 hour night shift (n = 17), 12 hour day shift (n = 38), and 12 hour rotating shift (n = 109)). Levine's test for equality of variance in gender indicated no statistical significance and the value of independent t-test on gender was squared to obtain comparable *F* values across different groupings. Cross-comparing the result of unequal numbers across different groupings were made based on the reported robustness of *t* and *F* tests for modest violations of equal numbers (Newton & Rudestam, 1999).

Table 1. *Significances in Work Ethic Subscales by Demographic Variables*

		Gender	Age	Level of Education	Work Experience	Supervisory Experience	Shift Preference
		<i>F</i> (1, 251)	<i>F</i> (3, 249)	<i>F</i> (4, 248)	<i>F</i> (2, 250)	<i>F</i> (3, 249)	<i>F</i> (5, 247)
Dep.	<i>F</i>	1.16	1.40	.70	.02	.33	.50
	<i>P</i>	.28	.23	.99	.98	.80	.78
Am.	<i>F</i>	.39	.77	1.14	.24	.10	.46
	<i>P</i>	.53	.51	.34	.79	.96	.81
Con.	<i>F</i>	.20	3.92*	.48	1.07	.88	.55
	<i>P</i>	.65	.01*	.75	.34	.45	.74
Co.	<i>F</i>	.47	1.34	.60	1.23	.87	.63
	<i>P</i>	.50	.26	.67	.29	.46	.68
All	<i>F</i>	.27	2.15	.33	.32	.37	.38
	<i>P</i>	.60	.94	.86	.73	.78	.87

Note. Dep. = Dependable, Co. = Cooperative, Am. = Ambitious, Con. = Considerate F

\*  $p < .05$ .

Group mean scores were statistically significant only on the measure of Considerateness across different age groups. The intent of grouping continuous variables, such as age and years of education or work was to examine whether measures of work ethic were similar or different among commonly practiced or recognized groups despite the downside of loosing accuracy and precision in dichotomizing continuous variables. Different generations, such as baby boomers are often characterized as sharing distinctive life and work values, work ethic being one of them. Researchers reported how different generations, such as baby boomers (36-55) and generation X (27-35) share unique life or work values (Lancaster & Stillman, 2002; Rosen, 2001). Post hoc analyses using the Tukey's test indicated that the group mean score on the Considerate scale of work ethic was significantly higher in the 27-35 age group (n = 63,  $M = 5.58$ ,  $SD = .51$ ) than that the 36-55 age group (n = 168,  $M = 5.30$ ,  $SD = .60$ ). Effect-sizes showed that the mean difference between these two groups was close to medium of .50, while non-significant results between the following pairs (i.e., below 26 and 36-55, 27-35 and over 55, 36-55 and over 55) were close to the reported small effects of .20 (Cohen, 1988).

Data analysis results also indicated that machine operators in the self-directed work team facility reported higher scores on being dependable, ambitious, considerate, cooperative, and the aggregated measure of all of them than did those in a traditional work group. The means, standard deviations, *t* values, effect-sizes, and confidence intervals are reported in Table 2. The mean difference of zero fell outside the lower limit of every scale in the OWEI work ethic measure and the associated *p* value was all below the .05 level. All found effect-sizes ranged from .28 to .44 indicating slightly larger than small to medium differences between two groups; The self-directed group ( $M = 5.09$ ,  $SD = .56$ ) reported most comparatively higher scores on the Cooperative scale than the conventional work group ( $M = 4.86$ ,  $SD = .50$ ),  $t(250)$ ,  $p = .001$ . Interestingly enough, the mean score on the scale of Cooperative was the lowest among all four sub-scales. The mean difference was the least for the Considerate scale, which was also statistically significant,  $t(250) = 2.02$ ,  $p = .04$ . The overall mean score was higher in the self-directed group ( $M = 5.37$ ,  $SD = .48$ ) compared to the conventional work group ( $M = 5.19$ ,  $SD = .43$ ). On both groups, the overall mean

score on each sub-scale was the highest on the Dependable category followed by Considerate, Ambitious, and Cooperative.

Table 2. *Differences in Work Ethic Subscale Mean Scores for Both Sites*

	Self-directed Group n = 83	Conventional Group n = 169			
Work Ethic Scale(s)	Mean (SD)	Mean (SD)	ES	t(250)	.95 CI
Dependable	5.83 (.56)	5.67 (.49)	.30	2.27*	.02, .30
Ambitious	5.13 (.50)	4.96 (.44)	.35	2.63**	.04, .30
Considerate	5.44 (.59)	5.28 (.57)	.28	2.02*	.04, .31
Cooperative	5.09 (.54)	4.86 (.50)	.44	3.34**	.10, .38
All	5.37 (.48)	5.19 (.43)	.38	2.93**	.06, .30

\*  $p < .05$ ., \*\*  $p < .01$ .

## Discussion and Implication for HRD

### *Self-directed Work Teams and Work Ethic*

As indicated from other research studies measuring the influence of various organizational variables on workplace behavior (Cordery, Mueller, & Smith, 1991; Denison, 1982; Kemp, Wall, Clegg, & Cordery, 1983; Pasmore, 1978; Trist, 1981), findings from this study also supported the positive relationships between desirable employee characteristics and personal behavior. The mean scores on both the overall OWEI and each subscale of the same instrument showed strong work ethic based upon self-perceptions and the self-directed work group displayed higher scores on all measured scale of work ethic: Dependable, Ambitious, Considerate, and Cooperative. In essence, these study findings imply that collegial and team oriented work structure, cooperative environment, and diversified tasks positively influence employees' attitudes on working hard. More specifically, certain characteristics of self-directed work teams (i.e., shared responsibilities and rotating work roles) seemed to cause employees to function more effectively within the self-directed work team structure. One interesting finding is that the mean scores of the respondents from self-directed work teams were less than 5 only in two areas: Ambitious and Cooperative. This implies that the characteristics of employees in self-directed work teams are more independent, achievement-oriented, initiating, responsible, persevering, sympathetic, observant, perceptive, adaptable, and cooperative than those in traditional work team structure. The employees of the traditional work systems seemed to also perceive themselves as working hard but potential barriers, such as fewer skill sets expected, not being team oriented, and being focused on accomplishing one task or process tended to contribute to their negative perceptions about their work being ambitious or cooperative.

It is also interesting to note that few significant findings were observed on groupings based upon demographic characteristics. The only significant difference in the score of work ethic was found in the scale of Considerate between the age group of 27-35 years (commonly referred as generation X) and the 36-55 group (commonly labeled as baby boomers). The Considerate scale included items related to being appreciative, devious or selfish (both reversely coded), likeable, helpful, pleasant, cheerful, courteous, considerate, friendly, and modest. The difference in scores on the *considerate* subscale by age implies a unique difference in generation specific attitudes and values. As expected, the 36-55 age range represents a large portion of the baby boomer generation. The baby boomer generation is characterized as having bad labor markets, corporate downsizing, poor economic environments, military conflicts, and work structures that valued individual achievement (Lancaster & Stillman, 2002). On the other hand, the 27-35 age group closely follows generation X. Generation X has entered the workforce at a time when companies value teamwork, group decision making, and interpersonal rapport (Rosen, 2001). The individuals in this age group are working to establish careers, enter into marriage, have children, buy homes, and are focused on issues that are unique to that age group. These two groups are in different places in the human life cycle which may directly effect their perceptions, attitudes, and values which in turn would differently affect their responses to the descriptors in the OWEI.

## Future Study and Limitations

Numerous studies on how to improve team performance and designing or implementing proper team interventions have contributed to the theory building effort within the field of HRD. While findings from this study seem to add valuable research steps to enhance the theory building endeavor in HRD, several limitations seem to exist to generalize the study findings. Random samples or quasi-experimental designs are often difficult to utilize in organizational settings. For these and the exploratory nature, this study did not examine any treatment effects nor potential interactions between contextual variables. Although no main effects were found across different groupings based on educational levels, full time work experiences, supervisory experiences, and work shift preferences, some of them may interact or co-vary with each other to influence employees' work ethic perceptions. This study also acknowledges that the geographical differences existed between the two manufacturing facilities, which may have confounded the data collected in this study. Due to certain circumstances beyond the researchers' control, access to research subjects was granted by company officials only to the two facilities that are located in two different geographical regions. Related to this, this study utilized employees from a manufacturing company, thus findings of this research may be limited to similar work environment within the US. For future studies, it is strongly recommended to use broader range of groups including samples from different industries to generalize the study findings. As generation gap is identified as one variable influencing the differing levels of work ethic among employees from this study, future studies will benefit more from the inclusion of more contextual variables such as employment status and types of job tasks that are empirically or theoretically supported.

## References

- Appelbaum, E., Bailey, T., Berg, P., & Kalleberg, A. L. (2000). *Manufacturing advantage: Why high-performance work systems pay off*. Ithaca, New York: Cornell Paperbacks.
- Barker, J. R. (1993). Tightening the iron cage: Concertive control in self-managing teams. *Administrative Science Quarterly*, 38(3), 408-437.
- Buchholz, R. A. (1978). The work ethic reconsidered. *Industrial and Labor Relations Review*, 31(4), 450-459.
- Blood, M. (1969). Work values and job satisfaction. *Journal of Applied Psychology*, 53(6), 456-459.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.), Hillsdale, NJ: Lawrence Erlbaum.
- Cordery, J. L., Mueller, W. S., & Smith, L. M. (1991). Attitudinal and behavioral effects of autonomous group working: A longitudinal field study. *Academy of Management Journal*, 34(2), 464-476.
- Cummings, T. G. (1978). Self-regulating work groups: A socio-technical synthesis. *Academy of Management Review*, 3(3), 625-634.
- Dachler, H. P., & Wilpert, B. (1978). Conceptual dimensions and boundaries of participation in organizations: A critical evaluation. *Administrative Science Quarterly*, 23(1), 1-39.
- Dawson, M. (1999). *A construct validity assessment of the Occupational Work Ethic Inventory* (Doctoral dissertation, University of Tennessee, 1999). Dissertation Abstracts International, 60, 2764.
- Denison, D. R. (1982). Socio-technical design and self-managing work groups: The impact on control. *Journal of Organizational Behavior*, 3, 297-314.
- Emery, F. E., & Trist, E. L. (1969). Socio-technical systems. In F. E. Emery (Ed.), *Systems Thinking*. London: Penguin.
- Furnham, A. (1990). A content, correlational, and factor analytic study of seven questionnaire measures of the protestant work ethic. *Human Relations*, 43(4), 383-399.
- Furnham, A., & Koritsas, E. (1990). The protestant work ethic and vocational preference. *Journal of Organizational Behavior*, 11(1), 43-55.
- Gable, R. K. (1972). Test review: D.E. Super Work Values Inventory. *Journal of Counseling Psychology*, 19, 565-568.
- Gibson, M. K., & Papa, M. J. (2000). The mud, the blood, the beer guys: Organizational osmosis in blue-collar groups. *Journal of Applied Communication Research*, 28(1), 68-88.
- Goldstein, B., & Eichhorn, R. L. (1961). The changing Protestant ethic: Rural patterns in health, work, and leisure. *American Sociological Review*, 26(4), 557-565.
- Gulowsen, J. (1972). A measure of work group autonomy. In L. E. Davis & J. C. Taylor (Eds.), *Design of jobs*, (pp. 374-390). Harmondsworth, U.K.: Penguin.
- Hammond, P. E., & Williams, K. R. (1976). The Protestant ethic thesis: A social psychological assessment. *Social Forces*, 54(3), 579-589.

- Hill, R. B. (1992). *The work ethic as determined by occupation, education, age, gender, work experience, and empowerment* (Doctoral dissertation, University of Tennessee, 1992). Dissertation Abstracts International, 53, 2343.
- Ho, R. (1984). Development of an Australian work ethic scale. *Australian Psychologist*, 19(3), 321-332.
- Holland, J. L. (1996). Exploring careers with a typology, *American Psychologist*, 51(4), 397-406.
- Jablin, F. M. (1985). An exploratory study of vocational organizational communication socialization. *Southern Speech Communication Journal*, 50, 261-282.
- Kemp, N. J., Wall, T. D., Clegg, C. W., & Cordery, J. L. (1983). Autonomous work groups in a greenfield site: A comparative study. *Journal of Organizational Psychology*, 56, 271-288.
- Lancaster, L., & Stillman, D. (2002). *When Generations Collide*. New York, NY: HarperCollins Publishers, Inc.
- Lawler, E. (1978). The new plant revolution. *Organizational Dynamics*, 6(3), 2-12.
- Lawler, E., Mohrman, S., & Benson, G. (2001). *Organizing for high performance: Employee involvement, TQM, reengineering, and knowledge management in the Fortune 1000*, San Francisco: Jossey-Bass.
- Levering, R., & Moskowitz, M. (2002). The 100 best companies to work for. *Fortune*, 145(3), 60-68.
- Mirels, H. L., & Garrett, J. B. (1971). The protestant work ethic as a personality variable. *Journal of Consulting and Clinical Psychology*, 36(1), 40-44.
- Morse, N. C., & Reimer, E. (1956). The experimental change of a major organizational variable. *Journal of Abnormal and Social Psychology*, 52(1), 120-129.
- Newton, R. R., & Rudestam, E. K. (1999). *Your statistical consultant: Answers to your statistical questions*, Thousand Oaks, CA: Sage.
- Ondrack, D.A., & Evans, M.G. (1987). Job enrichment and job satisfaction in greenfield and redesign QWL sites. *Group and Organizational Studies*, 12(1), 5-22.
- Orsburn, J. D., Moran, L., Musselwhite, E., Zenger, J., & Perrin, C. (1990). *Self-directed work teams: The new American Culture*. Homewood, Illinois: Business One Irwin.
- Pasmore, W. A. (1978). The comparative impacts of socio-technical system, job redesign, and survey-feedback interventions. In W. A. Pasmore & J. J. Sherwood (Eds.), *Socio-technical systems: A sourcebook* (pp. 291-301). La Jolla, CA: University Associates.
- Petty, G. C. (1991). *Development of the Occupational Work Ethic Inventory*. Unpublished manuscript, The University of Tennessee.
- Petty, G. C. (1995). Adult in the work force and the occupational work ethic. *Journal of Studies in Technical Careers*, 25(3), 133-140.
- Petty, G. C., & Morgan, K. R. (1980). *Teaching strategies to facilitate student's acquisition of affective work competencies* (Project No. 80-131-600-7). Columbia, MO: University of Missouri-Columbia, Department of Education.
- Ray, J. (1982). The protestant work ethic in Australia. *Journal of Social Psychology*, 22(1), 72-80.
- Rosen, B. (2001). Generation X. In *Mask and Mirrors*. Westport, CT: Praeger.
- Sundstrom, E. (1999). *Supporting work team effectiveness*. San Francisco: Jossey-Bass Publishers.
- Tompkins, P. K., & Cheney, G. (1985). Communication and unobtrusive control in contemporary organizations. In R. D. McPhee & R. K. Tompkins (Eds.), *Organizational communication: Traditional themes and new directions* (pp. 179-210). Newbury Park, CA: Sage.
- Trist, E. L. (1981). The socio-technical perspective. In A. H. Van de Ven & W. F. Joyce (Eds.). *Perspectives on organization design and behavior* (pp. 19-75). New York: John Wiley.
- Trist, E., & Bamforth, K. (1951). Some social and psychological consequences of the longwall method of coal getting. *Human Relations*, 4, 3-38.
- Wall, T. D., Kemp, N. J., Jackson, P. R., & Clegg, C. W. (1986). Outcomes of autonomous workgroups: A long-term field experiment. *Academy of Management Journal*, 29(2), 280-304.
- Wayne, F. S. (1989). An instrument to measure adherence to the protestant work ethic and contemporary work values. *Journal of Business Ethics*, 8(10), 793-804.
- Zuboff, S. (1983). The work ethic and work organizations. In J. Barbash, R. J. Lampaman, S. A. Levitan, & G. Tyler (Eds.). *The work ethic – A critical analysis* (pp.153-181). Madison: University of Wisconsin. Industrial Relations Research Association.